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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,032	09/24/2003	Robert Greenwald	16869G-088800US	6639

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EXAMINER	
URICK, MATTHEW T	
ART UNIT	**PAPER NUMBER**
2113	

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/671,032	GREENWALD ET AL.	
	Examiner	Art Unit	
	Matt Urick	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Non-Final Official Action

Status of the Claims

Claims 1-20 are rejected under 35 USC 103

Information Disclosure Statement

The information disclosure statement filed 9/24/03 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruce (United States Patent Application Publication 2002/0095623 A1) in view of Meyer (United States Patent 6,061,822).

As per claim 1, Bruce discloses:

A method for verifying data written onto a first memory device by a data storage system, the method comprising:

generating a sequence of numbers based on a seed value using a pseudo random number generator, the seed value including a time sensitive code (¶ 29);

Bruce fails to disclose:

writing the sequence of numbers on the first memory device and a second memory device using the data storage system;

reading data stored on the first memory device and the second memory device; and

comparing the data read from the first memory device to the data read from the second memory device to evaluate integrity of the data written onto the first memory device.

Meyer discloses a system with a disk drive that is mirrored for redundancy (column 4 lines 41-45). The sequence of error checking code is already written to both disks (column 5 lines 59-67: host drives are capable of receiving read and write commands). The data is read from the disks over two simultaneous channels (column 5 lines 15-26). The data is compared at a compare circuit (column 5 lines 32-40).

Bruce discloses that hard disk systems often fail due to write or read errors (¶ 26 - ¶ 27 are two such examples). Bruce also discloses that his system is capable of recognizing faults in storage systems (¶ 1), but it will not correct them. A RAID 1 or mirroring system is a commonly known method in the art to solve to such a problem, as described by Meyer (column 1 lines 49-56). Such a system provides protection from failure of a single disk, which is what Bruce is attempting to detect. Meyer discloses that it is crucial for such mirrored systems to guarantee identical contents of both disk drives.

Meyer's system provides a method which is faster and more reliable than those known in the art (column 2 lines 24-34). Using Bruce's system incorporated with Meyer's would enable a storage device to detect failures in data as well as quickly and reliably correct the errors present in the disk. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the CRC check of Meyer into the storage device testing system of Bruce, creating a more reliable and efficient disk storage system.

As per claim 2, Bruce discloses:

The method according to claim 1 wherein writing the sequence of numbers on the first memory device further comprises:

writing the sequence of numbers onto the first memory device at a logical block address (¶ 22 lines 1-13: a logical block addressing scheme is used).

As per claim 3, Bruce discloses:

The method according to claim 2 wherein writing the sequence of numbers on the second memory device further comprises:

storing the sequence of numbers on the second memory device at the logical block address.

Bruce discloses that his system uses a logical block addressing scheme (¶ 22 lines 1-13), and Meyers discloses that his system also uses a logical block addressing scheme and that it is used to read and write the contents of the disk drives (column 6

lines 1-10). Since Bruce also uses a logical block addressing scheme (Bruce ¶ 22 lines 1-13), it would be natural to use the system that is already in place on both of the redundant disks of Meyer. In addition, Meyer discloses that this scheme enables the CPU to use less clock cycles on read/write operations and use this time for multitasking (Meyer column 6 lines 10-20). Therefore, it would have been obvious to one of ordinary skill in the art to use logical block addressing on both disks, to maintain consistency and to improve CPU efficiency.

As per claim 4, Bruce discloses:

The method according to claim 3 wherein reading the data stored on the first memory device using the data storage system further comprises: reading the data stored at the logical block address.

Meyers discloses that his system also uses a logical block addressing scheme and that it is used to read and write the contents of the disk drives (column 6 lines 1-10; lines 50-53). Since Bruce also uses a logical block addressing scheme (Bruce ¶ 22 lines 1-13), it would be natural to use the system that is already in place on both of the redundant disks of Meyer. In addition, Meyer discloses that this scheme enables the CPU to use less clock cycles on read/write operations and use this time for multitasking (Meyer column 6 lines 10-20). Therefore, it would have been obvious to one of ordinary skill in the art to use logical block addressing on both disks, to maintain consistency and to improve CPU efficiency.

As per claim 5, Bruce discloses:

The method according to claim 2 wherein the seed value includes the logic block address (¶ 29: any method may be used to create the seed value, so long as it creates a unique value. ¶ 22 lines 13-26: The seed is stored in the header at the logical block address, and could easily provide a pseudo-random number by itself or incorporation with the time value).

As per claim 6, Bruce discloses:

The method according to claim 1 wherein the time sensitive code includes a date and a time that the sequence of numbers was generated (¶ 29, wherein the system clock contains the date and time).

As per claim 7, Bruce discloses:

The method according to claim 1 wherein the first memory device is a magnetic hard disk and the data storage system is a hard disk drive (¶ 2 lines 1-2).

As per claim 9, Bruce discloses:

The method according to claim 1 wherein the time sensitive code is stored in a database and is linked to a date and a time (¶ 32, seed is stored; ¶ 29: seed may be time sensitive).

As per claim 10, Bruce discloses:

A data storage system comprising:

a pseudo random number generator that generates a sequence of numbers based on a seed value that includes an event sensitive code (¶ 29); and

a controller for the data storage system that writes the sequence of numbers on a memory device under test (Bruce ¶ 32),

wherein the controller reads the sequence of numbers stored on the memory device under test, and compares the sequence of numbers to expected data to determine if the data storage system is functioning properly (Bruce ¶ 36- ¶ 37),,

Bruce does not disclose:

the expected data being generated from data stored on a second memory device.

Meyer discloses a system with a disk drive that is mirrored for redundancy (column 4 lines 41-45). The sequence of error checking code is already written to both disks (column 5 lines 59-67: host drives are capable of receiving read and write commands). The data is read from the disks over two simultaneous channels (column 5 lines 15-26). The data is compared at a compare circuit (column 5 lines 32-40).

Bruce discloses that hard disk systems often fail due to write or read errors (¶ 26 - ¶ 27 are two such examples). Bruce also discloses that his system is capable of recognizing faults in storage systems (¶ 1), but it will not correct them. A RAID 1 or mirroring system is a commonly known method in the art to solve to such a problem, as described by Meyer (column 1 lines 49-56). Such a system provides protection from failure of a single disk, which is what Bruce is attempting to detect. Meyer discloses that

it is crucial for such mirrored systems to guarantee identical contents of both disk drives. Meyer's system provides a method which is faster and more reliable than those known in the art (column 2 lines 24-34). Using Bruce's system incorporated with Meyer's would enable a storage device to detect failures in data as well as quickly and reliably correct the errors present in the disk. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the CRC check of Meyer into the storage device testing system of Bruce, creating a more reliable and efficient disk storage system.

As per claim 11, Bruce discloses:

The data storage system according to claim 10 wherein the controller writes the sequence of numbers on the second memory device, the controller reads the sequence of numbers stored on the second memory device, and the expected data is the sequence of numbers read from the second memory device.

Meyer discloses a system with a disk drive that is mirrored for redundancy (column 4 lines 41-45). The sequence of error checking code is already written to both disks (column 5 lines 59-67: host drives are capable of receiving read and write commands). The data is read from the disks over two simultaneous channels (column 5 lines 15-26). The data is compared at a compare circuit (column 5 lines 32-40).

Bruce discloses that hard disk systems often fail due to write or read errors (¶ 26 - ¶ 27 are two such examples). Bruce also discloses that his system is capable of

recognizing faults in storage systems (¶ 1), but it will not correct them. A RAID 1 or mirroring system is a commonly known method in the art to solve to such a problem, as described by Meyer (column 1 lines 49-56). Such a system provides protection from failure of a single disk, which is what Bruce is attempting to detect. Meyer discloses that it is crucial for such mirrored systems to guarantee identical contents of both disk drives. Meyer's system provides a method which is faster and more reliable than those known in the art (column 2 lines 24-34). Using Bruce's system incorporated with Meyer's would enable a storage device to detect failures in data as well as quickly and reliably correct the errors present in the disk. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the CRC check of Meyer into the storage device testing system of Bruce, creating a more reliable and efficient disk.

As per claim 12, Bruce discloses:

The data storage system according to claim 10 wherein the controller writes the seed value on the second memory device, the pseudo random number generator regenerates the sequence of numbers based on the seed value stored on the second memory device, and the regenerated sequence of numbers is the expected data (¶ 36, ¶ 37).

As per claim 13, Bruce discloses:

The data storage system according to claim 10 wherein the memory device under test is a magnetic hard disk drive and the controller is a hard disk drive controller (¶ 2 lines 1-2).

As per claim 14, Bruce discloses:

The data storage system according to claim 10 wherein the event sensitive code includes a date and a time (¶ 29, wherein the system clock contains the date and time).

As per claim 15, Bruce discloses:

The data storage system according to claim 14 wherein the seed value includes a logic block address corresponding to a location where the controller writes the sequence of numbers on the memory device under test (¶ 29: any method may be used to create the seed value, so long as it creates a unique value. ¶ 22 lines 13-26: The seed is stored in the header at the logical block address, and could easily provide a pseudo-random number by itself or incorporation with the time value).

As per claim 16, Bruce discloses:

The data storage system according to claim 10 wherein the controller writes the sequence of numbers on the memory device under test at a logical block address and on the reference drive at the corresponding logical block address.

Bruce discloses that his system uses a logical block addressing scheme (¶ 22 lines 1-13), and Meyers discloses that his system also uses a logical block addressing scheme and that it is used to read and write the contents of the disk drives (column 6 lines 1-10). Since Bruce also uses a logical block addressing scheme (Bruce ¶ 22 lines 1-13), it would be natural to use the system that is already in place on both of the redundant disks of Meyer. In addition, Meyer discloses that this scheme enables the CPU to use less clock cycles on read/write operations and use this time for multitasking (Meyer column 6 lines 10-20). Therefore, it would have been obvious to one of ordinary skill in the art to use logical block addressing on both disks, to maintain consistency and to improve CPU efficiency.

As per claim 17, Bruce discloses:

The data storage system according to claim 16 wherein the controller reads the sequence of numbers stored on the memory device under test at the logical block address (Bruce ¶ 22 lines 1-13).

As per claim 19, Bruce discloses:

The method according to claim 10 wherein the time sensitive code is stored in a database and is linked to a date and a time (¶ 32, seed is stored; ¶ 29: seed may be time sensitive).

As per claim 20, Bruce discloses:

A method for verifying data written onto a memory device under test by a data storage system, the method comprising:

generating a sequence of numbers based on a seed value using a pseudo random number generator, the seed value including a date and a time (¶ 29);

writing the sequence of numbers on the memory device under test using the data storage system (¶ 32);

regenerating the sequence of numbers based on the seed value [stored in the second memory device] using the pseudo random number generator (¶ 36 – 37);

reading the sequence of numbers stored on the memory device under test (¶ 34 - ¶ 35); and

comparing the regenerated sequence of numbers to the sequence of numbers read from the memory device under test to determine an integrity of data written onto the memory device under test (¶ 36 - ¶ 37).

Bruce does not disclose:

storing the seed value in a second memory device;

Meyer discloses a system with a disk drive that is mirrored for redundancy (column 4 lines 41-45). The sequence of error checking code is already written to both disks (column 5 lines 59-67: host drives are capable of receiving read and write commands). The data is read from the disks over two simultaneous channels (column 5 lines 15-26). The data is compared at a compare circuit (column 5 lines 32-40).

Bruce discloses that hard disk systems often fail due to write or read errors (¶ 26 - ¶ 27 are two such examples). Bruce also discloses that his system is capable of recognizing faults in storage systems (¶ 1), but it will not correct them. A RAID 1 or mirroring system is a commonly known method in the art to solve to such a problem, as described by Meyer (column 1 lines 49-56). Such a system provides protection from failure of a single disk, which is what Bruce is attempting to detect. Meyer discloses that it is crucial for such mirrored systems to guarantee identical contents of both disk drives. Meyer's system provides a method which is faster and more reliable than those known in the art (column 2 lines 24-34). Using Bruce's system incorporated with Meyer's would enable a storage device to detect failures in data as well as quickly and reliably correct the errors present in the disk. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the CRC check of Meyer into the storage device testing system of Bruce, creating a more reliable and efficient disk storage system.

Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruce (United States Patent Application Publication 2002/0095623 A1) in view of Meyer (United States Patent 6,061,822) as applied above and in further view of Null (The Essentials of Computer Organization and Architecture).

As per claim 8, Bruce and Meyer fail to disclose:

The method according to claim 1 wherein the first memory device is an optical disk and the data storage system is an optical disk drive.

Null discloses that a optical disc such as a CD-ROM, or CD-R/W offers an cost-effective, tamper resistant means of storage that is can be resilient for long periods of time (page 293: section 7.5 entitled "optical disks"). Bruce's invention attempts to test storage drives to ensure reliability (¶ 1 - ¶ 2), and Meyer's invention intends to improve reliability (column 1 lines 49-56). Using a reliable, cost effective medium such as an optical disk would improve the reliability and decrease the number of tests required to be performed to ensure that a storage medium is reliable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the optical discs into the storage device testing and reliability systems of Bruce and Meyer, creating a more reliable and efficient disk storage system.

As per claim 18, Bruce and Meyer fail to disclose:
The method according to claim 10 wherein the memory device under test is an optical disk and the data storage system is an optical disk drive.

Null discloses that a optical disc such as a CD-ROM, or CD-R/W offers an cost-effective, tamper resistant means of storage that is can be resilient for long periods of time (page 293: section 7.5 entitled "optical disks"). Bruce's invention attempts to test storage drives to ensure reliability (¶ 1 - ¶ 2), and Meyer's invention intends to improve reliability (column 1 lines 49-56). Using a reliable, cost effective medium such as an optical disk would improve the reliability and decrease the number of tests required to

be performed to ensure that a storage medium is reliable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the optical discs into the storage device testing and reliability systems of Bruce and Meyer, creating a more reliable and efficient disk storage system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt Urick whose telephone number is (571) 272-0805. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MTV

Bryce P. Bonzo

BRYCE P. BONZO
PRIMARY EXAMINER